



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2020-0975; Project Identifier 2020-NM-061-AD; Amendment 39-21566; AD 2021-11-04]

RIN 2120-AA64

Airworthiness Directives; De Havilland Aircraft of Canada Limited (Type Certificate Previously Held by Bombardier, Inc.) Airplanes

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain De Havilland Aircraft of Canada Limited Model DHC-8-400, -401, and -402 airplanes. This AD was prompted by a report of main landing gear (MLG) retractions after striking an obstacle or severe wheel imbalance after a tire failure. This AD requires inspections for correct height of the lock link over-center stop pin and for correct gaps of the left-hand and right-hand MLG downlock proximity sensors, replacement of the shim if necessary, corrective actions, and installation of a new, improved proximity sensor electronic unit (PSEU) with software changes. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: For service information identified in this final rule, contact De Havilland Aircraft of Canada Limited, Q-Series Technical Help Desk, 123 Garratt Boulevard, Toronto, Ontario M3K 1Y5, Canada; telephone 416-375-4000; fax 416-375-4539; email thd@dehavilland.com; Internet <https://dehavilland.com>. You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195. It is also available on the Internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2020-0975.

Examining the AD Docket

You may examine the AD docket on the Internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2020-0975; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, any comments received, and other information. The address for Docket Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: Darren Gassetto, Aerospace Engineer, Mechanical Systems and Administrative Services Section, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7323; fax 516-794-5531; email 9-avs-nyacocos@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

Transport Canada Civil Aviation (TCCA), which is the aviation authority for Canada, has issued TCCA AD CF-2016-31R1, dated March 24, 2017 (TCCA AD CF-2016-31R1) (also referred to as the Mandatory Continuing Airworthiness Information, or the MCAI), to correct an unsafe condition for certain De Havilland

Aircraft of Canada Limited Model DHC-8-400, -401, and -402 airplanes. You may examine the MCAI in the AD docket on the Internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2020-0975.

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain De Havilland Aircraft of Canada Limited Model DHC-8-400, -401, and -402 airplanes. The NPRM published in the *Federal Register* on November 2, 2020 (85 FR 69276). The NPRM was prompted by a report of MLG retractions after striking an obstacle or severe wheel imbalance after a tire failure. The NPRM proposed to require inspections for correct height of the lock link over-center stop pin and for correct gaps of the left-hand and right-hand MLG downlock proximity sensors, replacement of the shim if necessary, corrective actions, and installation of a new improved PSEU with software changes. The FAA is issuing this AD to address loss of MLG downlock signal caused by the vibrations from those events, which leads to de-energizing the MLG solenoid sequence valve (SSV) and subsequent removal of hydraulic pressure from the MLG downlock actuator. Loss of the hydraulic pressure in the downlock actuator, combined with the vibrations, can cause the stabilizer brace to unlock and the MLG to subsequently retract. See the MCAI for additional background information.

Comments

The FAA gave the public the opportunity to participate in developing this final rule. The following presents the comments received on the NPRM and the FAA's response to each comment.

Request to Exclude Certain Steps of the Accomplishment Instructions of Service Information

Horizon Air requested that paragraphs (g), (h), and (i) of the proposed AD be revised to require only paragraph 3.B. of the Accomplishment Instructions of the service bulletins referenced in those paragraphs. Horizon Air stated that the Job Set-up section

(paragraph 3.A.) of the Accomplishment Instructions do not directly address the unsafe condition. Horizon Air also asserted that retaining the Job Set-up sections restricts an operator's ability to do other maintenance in conjunction with the required service bulletins.

The FAA disagrees with the request to exclude paragraph 3.A., Job Set-up, of the Accomplishment Instructions from this AD's requirements. The Job Set-up sections of the required service bulletins include specific procedures for the electrical power and proper configurations of the nose landing gear (NLG) and MLG, which are necessary for accomplishing the applicable corrective actions on the PSEUs and proximity detectors and to prevent possible damage to that equipment. Requiring the Job Set-up instructions should not, in general, restrict the ability to schedule other maintenance actions in conjunction with the required actions. The FAA has not changed this AD in this regard.

Request to Allow Use of Alternative Service Information when Installing a Certain Part

Horizon Air requested that paragraph (i) of the proposed AD be revised to also allow installation of PSEU part number (P/N) 30145-0602 in accordance with Bombardier Service Bulletin 84-32-143, Revision B, dated November 16, 2016. Horizon Air pointed out that both documents stated that operators may receive a PSEU with P/N 30145-0601 or 30145-0602. Further, Horizon Air noted that PSEU P/N 30145-0602 is "two-way interchangeable" with P/N 30145-0601, and that the installation instructions are the same in both service bulletins.

The FAA disagrees with the request to revise paragraph (i) of this AD. The FAA agrees that the service information does state a two-way interchangeability of PSEU P/N 30145-0601 with PSEU P/N 30145-0602 and that operators may receive either PSEU P/N due to component availability. However, the service information also states that those in receipt of a PSEU must declare the appropriate service information specific to the PSEU P/N. In addition, while most of the Accomplishment Instructions between Bombardier

Service Bulletin 84-32-143, Revision B, dated November 16, 2016, and Bombardier Service Bulletin 84-32-149, dated November 16, 2016, are the same, they are not identical. Therefore, recording compliance with another service bulletin would not be in compliance with the applicable corrective actions for the PSEU P/N. The FAA has not changed the AD in this regard.

Conclusion

The FAA reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this final rule as proposed, except for minor editorial changes. The FAA has determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM for addressing the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

Related Service Information under 1 CFR Part 51

De Havilland Aircraft of Canada Limited has issued Bombardier Service Bulletin 84-32-140, Revision B, dated January 30, 2018. This service information describes set-up procedures for proper configuration of the MLG prior to performing subsequent procedures for inspections for correct height of the lock link over-center stop pin and for correct gaps of the left-hand and right-hand MLG downlock proximity sensors, and replacement of the shim.

De Havilland Aircraft of Canada Limited has also issued Bombardier Service Bulletin 84-32-143, Revision B, dated November 16, 2016, which describes procedures for installation of a new, improved PSEU, P/N 30145-0601, with software changes.

De Havilland Aircraft of Canada Limited has also issued Bombardier Service Bulletin 84-32-149, dated November 16, 2016, which describes procedures for installation of a new, improved PSEU, P/N 30145-0602, with software changes.

This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

Costs of Compliance

The FAA estimates that this AD affects 57 airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

Estimated costs for required actions

Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Up to 12 work-hours X \$85 per hour = Up to \$1,020	Up to \$4,750	Up to \$5,770	Up to \$328,890

The FAA estimates the following costs to do any necessary on-condition actions that would be required based on the results of any required actions. The FAA has no way of determining the number of aircraft that might need these on-condition actions:

Estimated costs of on-condition actions

Labor cost	Parts cost	Cost per product
1 work-hour X \$85 per hour = \$85	\$374	\$459

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII,

Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Will not affect intrastate aviation in Alaska, and
- (3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive:

2021-11-04 De Havilland Aircraft of Canada Limited (Type Certificate Previously Held by Bombardier, Inc.): Amendment 39-21566; Docket No. FAA-2020-0975; Project Identifier 2020-NM-061-AD.

(a) Effective Date

This airworthiness directive (AD) is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected Airworthiness Directives (ADs)

None.

(c) Applicability

This AD applies to De Havilland Aircraft of Canada Limited (type certificate previously held by Bombardier, Inc.) Model DHC-8-400, -401, and -402 airplanes, certificated in any category, having serial numbers 4001, and 4003 through 4534 inclusive.

(d) Subject

Air Transport Association (ATA) of America Code 32, Landing Gear.

(e) Reason

This AD was prompted by a report of main landing gear (MLG) retractions after striking an obstacle or severe wheel imbalance after a tire failure. The FAA is issuing this AD to address loss of MLG downlock signal caused by the vibrations from those events, which leads to de-energizing the MLG solenoid sequence valve and subsequent removal of hydraulic pressure from the MLG downlock actuator. Loss of the hydraulic pressure in the downlock actuator, combined with the vibrations, can cause the stabilizer brace to unlock and the MLG to subsequently retract.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Downlock Sensor Rigging and Reduced Lock Link Over-Center

Within 9 months after the effective date of this AD: Verify both the height of the lock link over-center stop pin and the gap of the left-hand and right-hand MLG downlock proximity sensors, and perform corrective actions as required, in accordance with paragraphs 3.A. and 3.B. of the Accomplishment Instructions of Bombardier Service Bulletin 84-32-140, Revision B, dated January 30, 2018. Do all applicable corrective actions before further flight.

(h) Installation of Proximity Sensor Electronic Unit (PSEU) Part Number (P/N) 30145-0601

Within 18 months after the effective date of this AD, install PSEU P/N 30145-0601 in accordance with paragraphs 3.A. and 3.B. of the Accomplishment Instructions of Bombardier Service Bulletin 84-32-143, Revision B, dated November 16, 2016.

(i) Installation of PSEU P/N 30145-0602

Installing PSEU P/N 30145-0602 in accordance with paragraphs 3.A. and 3.B. of the Accomplishment Instructions of Bombardier Service Bulletin 84-32-149, dated November 16, 2016, also accomplishes the requirements of paragraphs (g) and (h) of this AD.

(j) Credit for Previous Actions

(1) This paragraph provides credit for actions required by paragraph (g) of this AD, if those actions were performed before the effective date of this AD using the service information as specified in paragraphs (j)(1)(i) or (ii) of this AD.

(i) Bombardier Service Bulletin 84-32-140, dated August 5, 2016.

(ii) Bombardier Service Bulletin 84-32-140, Revision A, dated June 12, 2017.

(2) This paragraph provides credit for actions required by paragraphs (g) and (h) of this AD, if PSEU P/N 30145-0601 was installed before the effective date of this AD using the service information as specified in paragraphs (j)(2)(i) or (ii) of this AD.

(i) Bombardier Service Bulletin 84-32-143, dated June 30, 2016.

(ii) Bombardier Service Bulletin 84-32-143, Revision A, dated August 5, 2016.

(k) Other FAA AD Provisions

The following provisions also apply to this AD:

(1) *Alternative Methods of Compliance (AMOCs)*: The Manager, New York ACO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to ATTN: Program Manager, Continuing Operational Safety, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7300; fax 516-794-5531. Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(2) *Contacting the Manufacturer*: For any requirement in this AD to obtain instructions from a manufacturer, the instructions must be accomplished using a method approved by the Manager, New York ACO Branch, FAA; or Transport Canada Civil Aviation (TCCA); or De Havilland Aircraft of Canada Limited's TCCA Design Approval Organization (DAO). If approved by the DAO, the approval must include the DAO-authorized signature.

(l) Related Information

(1) Refer to Mandatory Continuing Airworthiness Information (MCAI) TCCA AD CF-2016-31R1, dated March 24, 2017, for related information. This MCAI may be found in the AD docket on the Internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2020-0975.

(2) For more information about this AD, contact Darren Gassetto, Aerospace

Engineer, Mechanical Systems and Administrative Services Section, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7323; fax 516-794-5531; email 9-avs-nyacocos@faa.gov.

(3) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (m)(3) and (4) of this AD.

(m) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless this AD specifies otherwise.

(i) Bombardier Service Bulletin 84-32-140, Revision B, dated January 30, 2018.

(ii) Bombardier Service Bulletin 84-32-143, Revision B, dated November 16, 2016.

(iii) Bombardier Service Bulletin 84-32-149, dated November 16, 2016.

(3) For service information identified in this AD, contact De Havilland Aircraft of Canada Limited, Q-Series Technical Help Desk, 123 Garratt Boulevard, Toronto, Ontario M3K 1Y5, Canada; telephone 416-375-4000; fax 416-375-4539; email thd@dehavilland.com; Internet <https://dehavilland.com>.

(4) You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email fedreg.legal@nara.gov, or go to: <https://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued on May 27, 2021.

Ross Landes, Deputy Director for Regulatory Operations,
Compliance & Airworthiness Division,
Aircraft Certification Service.

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